

Amendments to the Claims

Please amend the claims as follows, and please add claims 24-32. The following list of claims is complete and supercedes all prior lists of claims.

1. (Currently amended) In a A carrier solution for the introduction and washout of vitrifiable concentrations of cryoprotectants in a cell, tissue or organ, the improvement comprising inclusion of bicarbonate mannitol and lactose in the solution.

2. (Previously presented) The solution of Claim 1 further comprising vitrifiable concentrations of cryoprotectant.

3. (Previously presented) The solution of Claim 2 wherein said cryoprotectant comprises dimethyl sulfoxide, formamide, and ethylene glycol.

4. (Previously presented) The solution of Claim 2, wherein said cryoprotectant comprises polyvinyl alcohol or a copolymer of vinyl alcohol and vinyl acetate.

5. (Cancelled)

6. (Previously presented) The solution of Claim 2, wherein said cryoprotectant comprises polyglycerol.

7. (Currently amended) The solution of Claim 2 wherein said solution comprises impermeants selected from the group consisting of: polyglycerol, polyvinylpyrrolidone, polyvinyl alcohol, a copolymer of vinyl alcohol and vinyl acetate, and sucrose;

and wherein said solution has a tonicity of 1.2 to ~~1.5~~ 2.0 times that of a solution that does not cause osmotic volume changes of said cell, tissue or organ.

8. (Currently amended) A method for the introduction and washout of vitrifiable concentrations of cryoprotectants in a cell, tissue or organ, comprising:

adding the solution of Claim 2 ~~1 or Claim 11~~ to said cell, tissue or organ; and

removing the solution from the cell, tissue or organ.

9. (Currently Amended) A method for the cryopreservation of living systems by vitrification comprising:

adding a solution comprising ~~bicarbonate~~, mannitol, lactose, and vitrifiable concentrations of cryoprotectant to said living system; and

cooling said living system to a desired temperature.

10. (Currently amended) The solution of Claim 1, further comprising 90 mM glucose.

11-12. (Cancelled)

13. (Currently amended) The solution of Claim ~~11~~, 10 further comprising ~~90 mM~~ glucose, 45 mM mannitol, 45 mM lactose, 7.2 mM potassium phosphate, 1 mM calcium chloride, 2 mM magnesium chloride, 5 mM reduced glutathione, 28.2 mM potassium chloride, 10 mM sodium bicarbonate, and 1 mM adenine HCl.

14. (Cancelled)

15. (Currently amended) The solution of Claim 14 10, wherein said solution has a tonicity of between 1.1 to 2.0 times that of a solution that does not cause osmotic volume changes of said cell, tissue or organ.

16. (Currently amended) The solution of Claim 14 2 wherein said cryoprotectant comprises dimethyl sulfoxide, formamide, and ethylene glycol.

17. (Currently amended) The solution of Claim 14 2 wherein said cryoprotectant comprises polyvinyl alcohol or a copolymer of vinyl alcohol and vinyl acetate

18. (Currently amended) The solution of Claim 14 2 wherein said cryoprotectant comprises polyglycerol.

19. (Currently amended) A solution for the introduction and washout of vitrifiable concentrations of cryoprotectants in a cell, tissue or organ, comprising ~~bicarbonate~~, mannitol, lactose, and one or more cryoprotectants in an amount sufficient for vitrification of an organ.

20. (Currently amended) A solution for the introduction and washout of vitrifiable concentrations of cryoprotectants in a cell, tissue or organ, comprising ~~bicarbonate~~, mannitol, lactose, and polyvinyl alcohol or a copolymer of vinyl alcohol and vinyl acetate.

21. (Previously presented) A solution for the cryopreservation of living systems by vitrification comprising mannitol, lactose, and vitrifiable concentrations of cryoprotectant, wherein said cryoprotectant comprises polyglycerol.

22. (Previously presented) The solution of Claim 1, wherein said solution has a tonicity of between 1.1 to 2.0 times that of a solution that does not cause osmotic volume changes of said cell, tissue or organ.

23. (Previously presented) The solution of Claim ~~11~~ 10, wherein said solution has a tonicity of between 1.1 to 2.0 times that of a solution that does not cause osmotic volume changes of said cell, tissue or organ.

24. (New) The solution of claim 1 wherein the lactose and mannitol are present in equal concentrations.

25. (New) The solution of claim 24 wherein the lactose and mannitol are each present at 45 mM.

26. (New) The solution of claim 10 further comprising 10 mM bicarbonate.

27. (New) The solution of claim 10, further comprising 22.305% w/v DMSO, 12.858% w/v formamide, 23.837% w/v ethylene glycol, and 1% w/v X1000, 4% w/v decaglycerol in LM5 carrier.

28. (New) The solution of claim 10, further comprising 22.305% w/v DMSO, 12.858% w/v formamide, 16.837% w/v ethylene glycol, and 1% w/v X1000, 4% w/v decaglycerol, and 7% w/v acetol in LM5 carrier.

29. (New) The solution of claim 10, further comprising 22.305% w/v DMSO, 12.858% w/v formamide, 16.837% w/v ethylene glycol, 1% w/v X1000, 1% w/v decaglycerol, and 7% w/v polyvinylpyrrolidone 5,000 in LM5 carrier.

30. (New) The solution of claim 7 having a tonicity of 1.2 to 1.5 times that of a solution that does not cause osmotic volume changes of said cell, tissue or organ.

31. (New) The solution of Claim 10 wherein the mannitol is present at 45 mM and the lactose is present at 45 mM, and further comprising 7.2 mM potassium phosphate, 5 mM reduced glutathione, 28.2 mM potassium chloride, 10 mM sodium bicarbonate, and 1 mM adenine.

32. (New) The solution of claim 31 further comprising 1 mM CaCl_2 and 2 mM MgCl_2 .